

CLAIMS

What is claimed is:

1. An electrophotographic printer comprising:
a main frame;
a photosensitive drum unit having a photosensitive drum and vertically detachably installed on the main frame;
a plurality of development units each having a developing roller and detachably installed on the main frame while sliding in a horizontal direction; and
a first door installed to open and close a portion of the main frame to mount or dismount the plurality of development units on the main frame.
2. The electrophotographic printer of claim 1, wherein the first door comprises a pressurizing unit to elastically push each of the plurality of development units toward the photosensitive drum.
3. The electrophotographic printer of claim 1, further comprising:
a retracting unit to retreat at least one of the development units being positioned above a center of the photosensitive drum in association with an opening operation of the first door to a position at which the development unit does not interfere with the photosensitive drum when the photosensitive drum unit is mounted or dismounted in a vertical direction.
4. The electrophotographic printer of claim 3, wherein the first door is opened to either a first opening position or a second opening position, and when the first door is opened from the first opening position to the second opening position, the retracting unit retracts the at least one of the development units being positioned above the center of the photosensitive drum to a position at which the at least one of the development units does not interfere with the photosensitive drum when the photosensitive drum unit is mounted or dismounted in a vertical direction.
5. The electrophotographic printer of claim 3, wherein the retracting unit comprises:
a first connection unit provided in each of the development units; and
a first member having a second connection unit coupled to the first connection unit and sliding in a direction in which the at least one of the development units retracts in association

with an opening operation of the first door.

6. The electrophotographic printer of claim 5, wherein the first door is opened to either a first opening position or a second opening position, and the first connection unit and the second connection unit are spaced apart from each other and come in contact with each other when the first door is opened from the first opening position to the second opening position, so that the at least one of the development units is retracted.

7. The electrophotographic printer of claim 5, wherein the retracting unit comprises:
a third connection unit provided in the first member; and
a second member having a fourth connection unit coupled to the third connection unit and rotatably installed in the first door to pull the first member in a retracting direction as the first door is opened

8. The electrophotographic printer of claim 7, wherein the first door moves between a first opening position and a second opening position, and the third connection unit is shaped of a boss formed in the first member and the fourth connection unit is shaped of a slot into which the boss is inserted so that when the first door is opened from the first opening position to the second opening position, an end of the slot is brought into contact with the boss to pull the first member in the retracting direction.

9. The electrophotographic printer of claim 3, further comprising:
a pre-transfer eraser to remove charges from a non-image region of the photosensitive drum by irradiating light onto the photosensitive drum before the toner image formed on the photosensitive drum is transferred to the transfer belt,

wherein the pre-erasing unit comprises:

a plurality of pre-erasing lamps irradiating the light;

a pre-transfer erasing lens to induce the light generated from the pre-transfer erasing lamp to the photosensitive drum, and movably installed such that it moves to an erasure position at which the pre-transfer erasing lens is close to the photosensitive drum for erasure, and moves to a retracted position spaced apart from the photosensitive drum so as not to interfere with the photosensitive drum when the photosensitive drum unit is being mounted or dismounted; and

an elastic member to provide an elastic force in a direction in which the pre-

transfer erasing lens is moved to the retracted position, and

wherein when the respective development units are mounted, the uppermost development unit contacts and pushes the pre-transfer erasing lens to the erasure position to contact the uppermost development unit, and when the development unit is retracted by the retracting unit, the pre-transfer erasing lens moves to the retracted position by the elastic force of the elastic member.

10. The electrophotographic printer of claim 1, further comprising:
a second door to be opened to mount or dismount the photosensitive drum unit;
an opening switch to open the second door; and
a door locking unit to allow the opening switch to operate the second door to be opened only when the first door is opened.

11. The electrophotographic printer of claim 10, wherein the door locking unit allows the first door to be closed only when the second door is closed.

12. The electrophotographic printer of claim 10, wherein the door locking unit comprises:
a first member having an interference unit and installed on the main frame to slide in association with an opening operation of the first door; and
a third member installed to be movable as the opening switch operates, and selectively being interfered with by the interference unit according to opening or closing of the first door to selectively control the opening switch to operate.

13. The electrophotographic printer of claim 12, wherein the door locking unit comprises a second member having one end connected to the second door and the other end connected to the first member to make the first member slide as the first door is opened.

14. The electrophotographic printer of claim 12, wherein the third member and the interference unit control the first door to be closed only when the second door is closed such that they interfere with each other in a state in which the second door is opened so as to make the first member not slide.

15. An electrophotographic printer comprising:

a housing having a top, a bottom, and a side disposed between the top and the bottom;
a main frame disposed on the housing;
a photosensitive drum unit having a photosensitive drum and slidably installed on the main frame in a first direction;
a development unit having a developing roller and slidably installed on the main frame in a second direction different from the first direction; and
a first door installed on the housing to open and close the side of the housing to allow the plurality of development units to be mounted on and dismounted from the main frame through the side of the housing.

16. The electrophotographic printer of claim 15, further comprising:

a second door installed on the housing to open and close the top of the housing to allow the photosensitive drum unit to be mounted on and dismounted from the main frame through the top of the housing.

17. The electrophotographic printer of claim 16, wherein the second door is not opened when the first door is not opened to prevent damage of the photosensitive drum due to an interference between the photosensitive drum and the development unit.

18. The electrophotographic printer of claim 16, further comprising:

a retreat unit to retreat the developing roller from the photosensitive drum unit when the photosensitive drum unit is dismounted from the main frame, to prevent an interference between the photosensitive drum and the development unit.

19. The electrophotographic printer of claim 16, further comprising:

a locking unit to lock and unlock the second door according to a movement of the first door to prevent damage of the photosensitive drum when the photosensitive drum is dismounted from the main frame in a state that the first door is not opened.

20. The electrophotographic printer of claim 16, further comprising:

a locking unit to lock and unlock the second door according to a movement of the development unit to prevent the photosensitive drum unit from being dismounted from the main frame while the the developing roller contacts the photosensitive drum.

21. The electrophotographic printer of claim 16, wherein the photosensitive drum unit is mounted on and dismounted from the main frame according to a movement of the first door.

22. The electrophotographic printer of claim 15, wherein the first and second directions are perpendicular to each other to reduce a mounting stroke of the photosensitive drum unit.

23. The electrophotographic printer of claim 15, wherein the photosensitive drum unit and the development unit are not simultaneously mounted on and dismounted from the main frame.

24. An electrophotographic printer comprising:
a housing including first and second doors positioned at two adjacent sides thereof;
a photosensitive drum unit slidably installed into the housing through the second door to be mountable adjacent to the photoconductive drum unit to develop an image thereon; and
a door controlling unit to control the second door from being opened unless the development unit is retracted away from the photosensitive drum unit by a predetermined distance.

25. The electrophotographic printer of claim 24, wherein the door controlling unit comprises a retracting unit to retract the development unit away from the photoconductive drum unit when the first door is opened and prevents the development unit from being mountable adjacent to the photoconductive drum unit unless the first door is closed.

26. The electrophotographic printer of claim 24, wherein the second door is positioned on a top position of the housing and the first door is positioned on a side of the housing.

27. The electrophotographic printer of claim 25, wherein the door controlling unit comprises an interfering unit to prevent the first door from closing until the second door is closed.